Inspection Standard for Tuolumne County - Fuel Gas Piping

What you should know before calling for an inspection.

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A lot of requirements, in a small inspection!

- What we'll cover
  - Pertinent codes
  - Materials
  - Underground installs
  - Above ground installs
  - Sizing
  - Testing

- Prevailing Documents
  - 2013 UPC, Chapter 12
  - UPC Installation standards and materials listings
  - NFPA 54

Did we find your project?

- Address must be posted per County Standard for all inspections
  - 4 inch stroke
  - ½" lettering
  - Contracting, reflectorized background

Materials

- Allowed piping/tubing per 2013 UPC
  - Cast Iron 1208.5.2.1
  - Steel and Wrought Iron 1208.5.2.2
  - Copper and Brass – 1208.5.2.3
  - Aluminum Alloy – 1208.5.2.4 and 1208.5.3.3
  - Corrugated Stainless Steel – 1208.5.3.4
  - Polyethylene - 1208.5.4
- Common types in Tuolumne County
  - PE
  - Steel
    - Galvanized
    - Black
    - Corrugated stainless

Underground Installation

- Provided adequate clearance from underground structures for maintenance. - 1210.1
  - Foundation clearance: setback = depth of footing (45 degrees) Section 314.1
- Cover requirements - 1210.1.1
  - 18″ standard
  - 12″ where low damage probability
  - If 12″ not possible, place in conduit or shield it.
- Trench grading – 1210.1.2
  - Firm, substantially continuous bedding required

Example

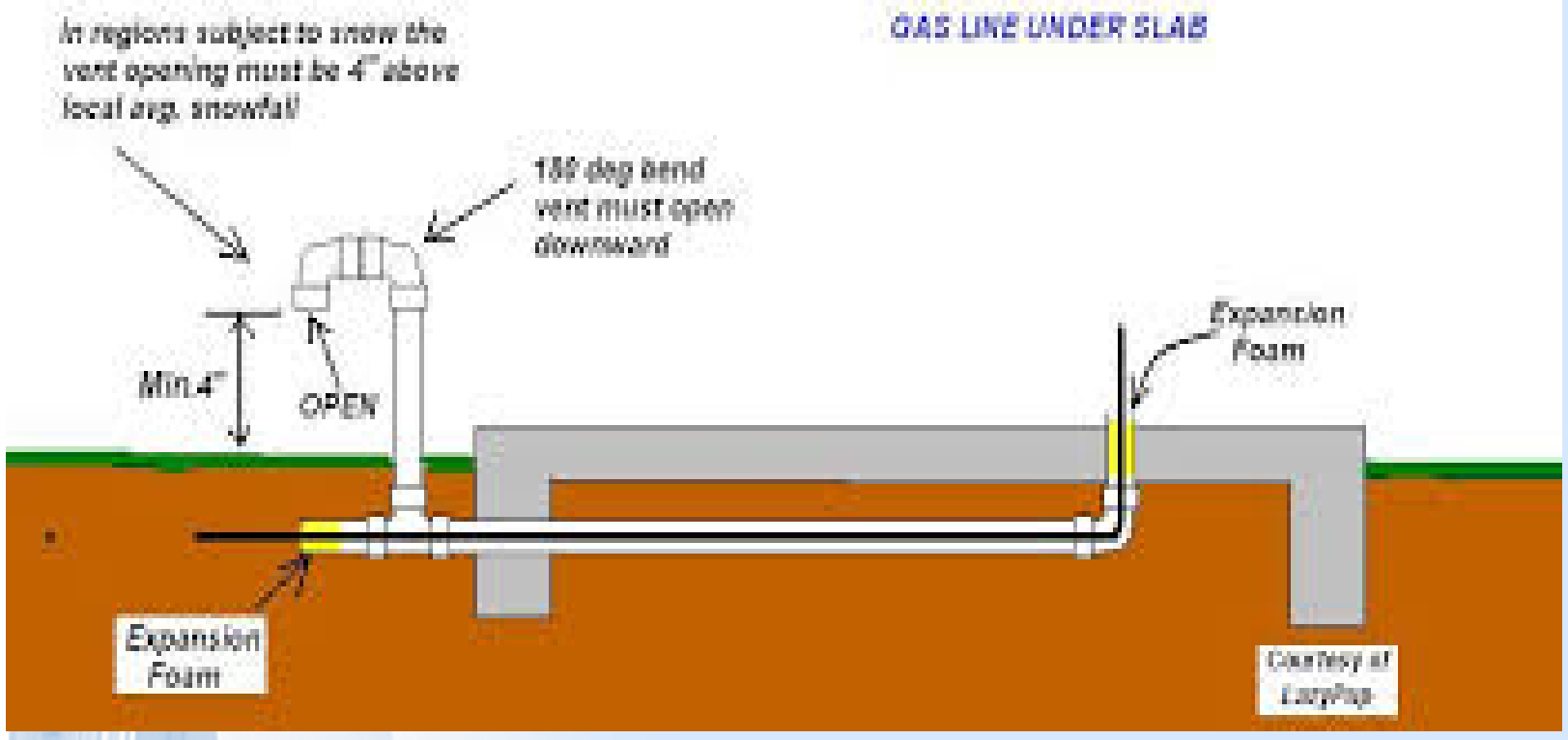
Underground Installations

- Protection against corrosion – 1210.1.3
  - Insulating coupling required where joining dissimilar metals.
  - Protectively coated pipe: Machine applied coating with joints protected 312.5
- Piping through a foundation wall – 1210.1.5
  - Protective sleeve or other approved device or method.
  - Voids between foundation/sleeve/gas piping must be sealed
- Tracer wire – 1210.1.7.1
  - Electrically continuous 14AWG wire.
  - Tracer tape.
  - One end brought above ground at building or riser.

Underground Beneath Buildings – 1210.1.6

- Encased in approved conduit or is piping listed for beneath buildings.
- Conduit with one end terminating outside.
  - Shall extend into an area of the building that is normally used and accessible
  - End inside building must be sealed.
  - Is end sealing is a type that can hold the full pressure of the pipe, conduit must be rated for gas piping pressure.
  - Outside end to terminate not less than 4" outside building, vent above finished grade and be screened to prevent rodent and insect entry.
- Conduit with two ends terminating indoors.
  - Both ends accessible and unsealed.

example


In regions subject to snow the vent opening must be 4" above local avg. snowfall
GAS LINE UNDER SLAB
180 deg bend vent must open downward
Min.4"
OPEN
Expansion Foam
Expansion Foam

Anodeless Risers

Only permitted means for PE pipe to terminate above ground.

Above ground piping – 1210.2 Quick!

- Seal penetrations in exterior walls.
- Can't damage or exceed load values of the structure.
- Must be sloped ¼ " in 15 feet, unless in dry gas conditions
- Allowed between a fixed and drop ceiling.
  - No valves allowed unless for a vented appliance.

Above ground piping – 1210.2 Quick!

- Prohibited locations:
  - clothes chutes
  - Chimneys
  - Gas vents
  - Dumb waiters
  - Elevator shafts
  - Air ducts
    - Other than combustion air ducts

Piping Concealed in walls

- When concealed in walls nail protection required where close than 1 ½ " from face of stud.
- For Corrugated Steel
  - Provide steel striker barriers extending 4" beyond all framing penetrations.
  - Must be single runs and *not* be rigidly secure.

Support spacing – Table 1210.2.4.1

GAS PIPE SUPPORT REQUIREMENTS (CPC Table 1210.2.4.1)	
Size of Pipe	**Pipe Support Distance (maximum)**
1/2″ Tubing	4 feet
1/2″ Steel Pipe 5/8″ or 3/4″ Tubing	6 feet
3/4″ to 1″ Steel Pipe 7/8″ or 1″ (Horizontal) Tubing	8 feet
1-1/4″ or larger (Horizontal) Steel Pipe	10 feet
1-1/4″ or larger (Vertical) Steel Pipe 1″ or Larger (Vertical) Tubing	Every Floor

Support considerations

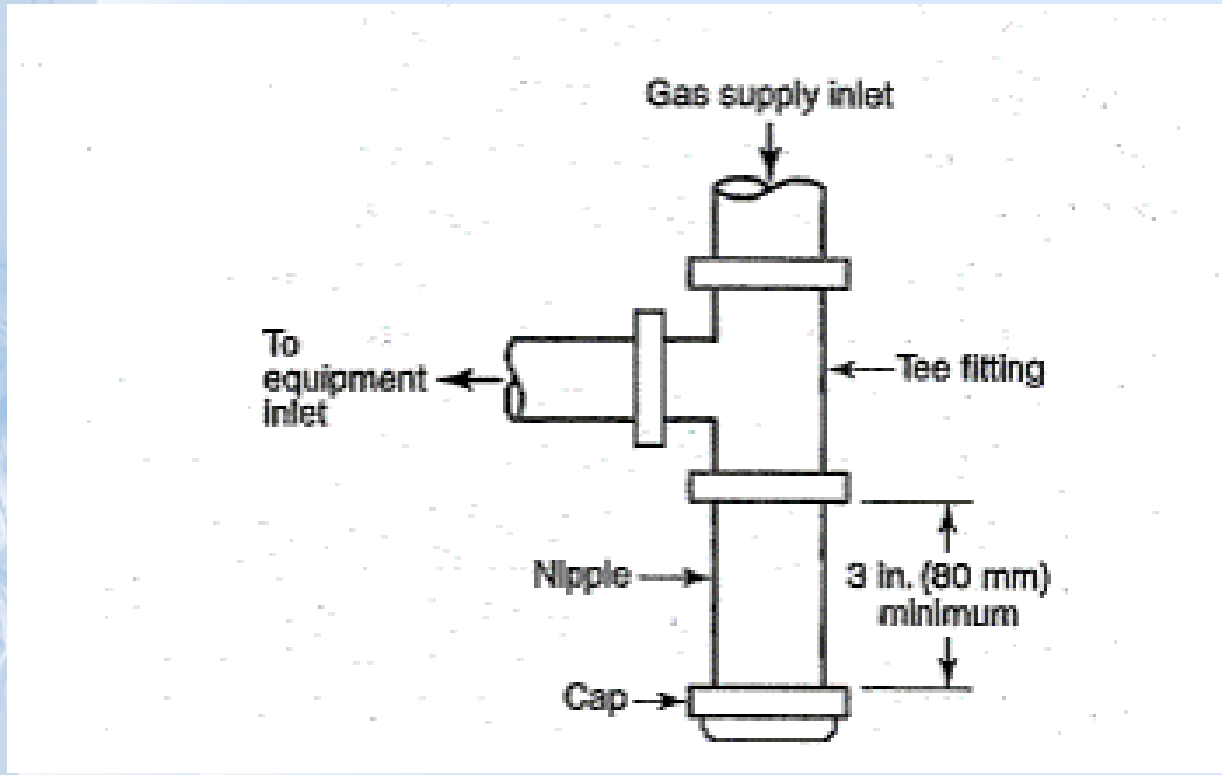
- Preventing/reducing vibration
- Removing strain from connected equipment.
- Expansion and contraction.
- Cannot be supported by other piping systems.

example

Sediment traps – 1210.8 & 1211.8

- *Down stream* of a shutoff
- As close as practical to the appliance connection.
- Accessible for maintenance

Sediment trap detail



Gas Outlets – 1210.9

- Shall be securely fastened
- Shall not be behind doors
- Unthreaded portion shall extend 1 inch though finished walls and ceilings and 2 inches through finished floors
- Shall be capped if not in use. *Including capping shut-off valves.*

Gas Bonding – 1210.15

- Must be electrically continuous and bonded to an effective ground-fault current path.
  - Being connected to a grounded appliance counts!
- Shall not be used as a grounding electrode of a grounding path for electrical circuits.

Appliance Shut Off Valves – 1211.5

- Must be within 6 feet of appliance location.
- Must be upstream of the appliance connector.
- Must be accessible.
  - Can be located inside or under an appliance as long as appliance removal does not require removing the shut off valve. *Don't modify the appliance to make this happen!*
  - Can be located in wall and floor heaters where regular maintenance happens without removal of the shutoff valve.

Pressure testing - 1213

- Allowable gases
  - Air, *Not oxygen*
  - CO2 or Nitrogen, *Inspector must be present to use*
- Allowable pressures
  - Standard – 10 psi for 15 minutes
  - Welded pipe of >14 inches water column – 60 psi for 30 minutes
- Allowable gauges – 318.0
  - 10 psi pressure = .10 psi incrementation max
  - 11 – 100 psi = 1 psi incrementation max
  - > 100 psi = 2% of max pressure incrementation

The Gauge

Other considerations:

- Inspectors will also check line size based on demand. This will also include demand changes to existing pipe resulting from added branch lines.
- Inspection is considered not ready if line is not capped and not under pressure.
  - *Cancellations received prior to arrival on site are not considered "not ready".*
- When re-inspection fees apply:
  - After the first correction or not ready result for gas line permits.
  - After the second project correction or not ready for remodel or new construction permits

Questions?